

# AI BLUEPRINT FOR AOTEAROA

July 2024



**AI Forum**  
New Zealand  
Te Kāhui Atamai Iahiko o Aotearoa

# ACKNOWLEDGEMENTS

The AI Forum of New Zealand Te Kāhui Atamai Iahiko o Aotearoa and its Executive Council would like to acknowledge the following contributors

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## AI Blueprint Workshop, 31 May 2024

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Our sector leads who facilitated and drafted the input from the participants: Craig Pattison, Agriculture; Maria Mingallon, Architecture, Engineering & Construction; Paula Browning, Creative Industries; Dr Geri Harris, Education; Professor Albert Bifet, Environment; and, Kevin Ross, Health.

We also extend our thanks to all participants at the workshop held on 31 May 2024 and to MinterEllisonRuddWatts for hosting.

## AI Blueprint for Aotearoa Report

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The AI Forum Executive Council, our Kāhui Māori Atamai Iahiko sector leads along with the many practitioners and thought leaders who contributed to the development of this report.

JULY 2024

# AI BLUEPRINT FOR AOTEAROA



## PURPOSE

The AI Forum of New Zealand's AI (Artificial Intelligence) Blueprint for Aotearoa New Zealand is intended to align with the New Zealand Government's AI Principles and Roadmap, currently under construction, and Callaghan Innovation's work to encourage and support the adoption of AI in Aotearoa.

This paper presents a strategy to highlight current industry investments in AI in Aotearoa and help guide strategic investments over the next five years to support AI technologies. It proposes a mechanism to leverage existing industry initiatives and programmes to help drive results and achieve our shared vision.

## ABOUT THE AI FORUM

The Artificial Intelligence Forum of New Zealand (AI Forum) Te Kāhui Atamai Iahiko o Aotearoa is a purpose-driven, not-for-profit, non-governmental organisation (NGO) that is funded by members. We bring together New Zealand's community of artificial intelligence technology innovators and entrepreneurs, investor groups, government bodies and regulators, researchers, academics and educators, end users and interested public to work together to find ways to use AI to harness the power of artificial intelligence to enable a prosperous, inclusive and equitable future Aotearoa.

[www.aiforum.org.nz](http://www.aiforum.org.nz)

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PART ONE:

# AI BLUEPRINT FOR AOTEAROA

Aotearoa New Zealand is a [world leader](#) in various aspects of AI. Our cutting edge research capabilities underpin an emerging technology industry, supported by New Zealand grown organisations and international technology giants.

AI underpins some of our largest recent international success stories, including Soul Machines and Xero. Meanwhile, lesser known homegrown companies on their way to reaching unicorn status include LanzaTech, Toku Eyes and Nilo.

## Five year outlook

In December 2023, we published a paper on an AI Strategy Reboot for Aotearoa. In May 2024, both the AI Forum's Executive Council and the AI Blueprint Workshop<sup>1</sup> attendees agreed that our five year year goals needed to be more ambitious. As a result, we are restating these goals to be:

In 2030, Aotearoa New Zealand is a world-leading hub for responsible AI innovation and is globally recognised for harnessing the power of AI to enable a prosperous, inclusive and equitable future.

## Outcomes and Measures

To achieve this we will need to establish clear baseline metrics for AI adoption. These metrics can then be measured over time to track trends and changes.

Potential measures for success may include:

### Quantitative

- Early indicators from research, including:
  - the AI Forum's research into AI's impact on Productivity in Aotearoa; and
  - Rerun the '[State of AI in Aotearoa](#)' [Report](#) first published September 2021 in partnership with Qrious, MBIE and StatsNZ.
- Trend lines from whole of system metrics:
  - Achieve top 30 status in Government AI Readiness Index. We currently rank 49 out of 139 countries
  - Achieve top 25 status in [Global AI Index](#). We currently rank 36 out of 62 countries.
  - Achieve top 10 for productivity in OECD countries using AI. We currently rank 26 out of 37 countries.
- Other sources where there are empirical measures that indicate the scale and impact of AI across Aotearoa New Zealand organisations.

### Qualitative by June 2026

Aotearoa is a recognised Hub for world-leading responsible AI innovation. We are proactive, agile and 'ready to go' in our six chosen focus sectors; and are a recognised leader in Indigenous and Environmental AI.

### Qualitative by 2030

Aotearoa has no major sector where productivity or growth is limited by the availability of skilled people.

<sup>1</sup> AI Blueprint Workshop, held 31 May 2024, at Minter Ellison Rudd Watt's offices in Auckland

## Objectives

Recognising the potential AI has to address the productivity gap Aotearoa faces, the AI Forum has embarked on a process to develop a Blueprint focused on Aotearoa harnessing the power of AI technologies for a prosperous, inclusive and equitable future Aotearoa.

Our objectives include:

- Building trust and knowledge in the development and use of AI among the general public, gaining social licence and confidence we can implement these technologies responsibly and safely.
- Active adoption of AI technologies across an ecosystem with depth in small, medium and global enterprises.
- Strong regard to the people of Aotearoa New Zealand, especially to Te Tiriti o Treaty of Waitangi. For example, asking our [Kāhui Māori](#) to lead the kōrero on how we incorporate Māori voices into our governance guidelines.
- A workforce that has been upskilled, fostering an inclusive and equitable tech community that creates career mobility.
- Sustainable technology infrastructure, both robust in nature and environmentally sound, and aligned in our AI for the Environment work.
- A robust research pipeline with informed and active investors.

This AI Blueprint presents a strategic model designed to realise this vision. It encourages stakeholder buy-in, including from our wider society, by building familiarity, momentum and trust.

Our proposal is ambitious and its success will require active participation, support and investment from all stakeholders across the ecosystem.

## Future Focus: Words are not enough, we need to act now

In five years it will be too late to start this journey. We will have lost the advantage our globally valuable assets provide. We need to start NOW and at SPEED.

### What will the world look like in the future?

The development of these technologies is occurring faster and more broadly than any other technology ever.<sup>2</sup> While this accelerates the pace of change and makes predictions more challenging, it also emphasises the importance of agility and speed.

We can use tools to anticipate and plan for the future, even with significant unknowns.

Questions like 'How will Generative AI change the role of humans in society in five years?' and 'What will be the actual social, environmental and economic impact of Quantum Computing?' highlight the need for proactive planning and adaptability.

### Planning for future and dealing with uncertainty

Using tools like the McKinsey Three Horizons Model, we can create future facing technology views that help us see into the future based on our current knowledge (see figure on page 9). When reviewed regularly, can help us to plan effectively.

<sup>2</sup> <https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01/>

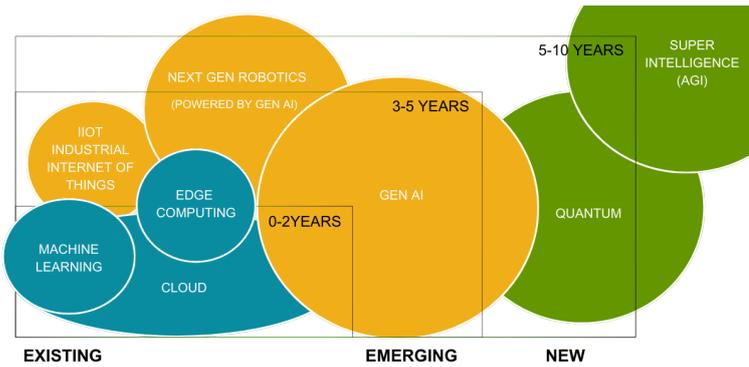


Figure: Example of Three Horizons Technology View  
 Note: this figure is not intended to be an empirically based representation

When used in conjunction with informed Adoption and Risk Models, we can manage our near term technology implementations more effectively.

## Preparing for the future - NOW

We must prepare for the future now to leverage our globally significant strategic assets and avoid becoming mere consumers of technology developed for overseas audiences. By doing so, we can protect our local identity and secure the best opportunities for our future prosperity.

### Making best use of our globally valuable strategic assets includes:

- **Data:** Our nationally significant data sets are accurate, complete, reliable, relevant and timely. For example, the high quality of our health records collected over time.
- **Trustworthy:** Our stable and reputable social and political environment.
- **Te Ao Māori:** Te Tiriti o Waitangi has provided firm challenges for technologists to solve including digital equality, inclusion and data sovereignty. Answering these challenges will benefit all New Zealanders and potentially offer solutions to other nations and Indigenous Peoples.

- **Sustainable Environment:** including sustainable energy sources.
- **Existing Support Structures:** including Callaghan Innovation, our universities and nascent technology hubs.

### In order to achieve this , we need to:

- Shift our mindset to help us accept systems that are significantly superior to our current ones - embracing incremental improvement rather than waiting for perfection.
- Support our people in adapting to the significant societal changes by transforming how we educate and upskill our workforce, and how we incentivise roles that are in high demand.
- Harness Generative AI to tackle areas where there are shortages in skills by identifying challenges and exploring how technology can offer solutions.
- Build safe places to play, like sandboxes, that allow local and overseas organisations to invest in developing products here and then export.
- Maintain our trustworthy status with appropriate guardrails to ensure AI is developed and used fairly, safely and responsibly.
- Communicate effectively and inclusively to ensure all of Aotearoa New Zealand joins us on this journey.

### Sector development policies

We have initially prioritised six high-importance sectors, each outlined in Part Two of this document:

- Agriculture
- Architecture Engineering and Construction

- Creative Industries
- Education
- Environment
- Health

These sectors were selected in consultation with the Government, and are recognised as key sectors for Aotearoa’s long-term economic success; and will benefit from greater investment in, and adoption of AI. This is not intended to be an exhaustive or exclusive list.

The frameworks are structured around the foundational elements of an innovation system, with each sector detailing the necessary activities for the next 12 months to reach their five year goals.

In a resource constrained environment, collaboration with industry and research partners becomes crucial. Effectively leveraging global trends and local assets, and aligning co-investment across the ecosystem, will be pivotal to our success.

We begin by establishing key strategic pillars to inform investment decisions and prioritise near-term policies.

**The four strategic pillars categorise blueprint activities:**

The New Opportunities pillar represents building and trying out new capabilities through piloting and prototyping within the public and private sectors, in start ups, scale ups and existing organisations. The second pillar covers increasing and scaling those capabilities. The third pillar covers tools, frameworks and organisations that support activation and adoption activities. The fourth pillar is about building talent, both within our existing school systems and, just as importantly, upskilling our existing workforce.

Aligned Strategic Statements of Intent<sup>3</sup> (SSIs) are used to engage industry and research partners, both domestically and internationally.

<p><b>New Opportunities</b></p> <ul style="list-style-type: none"> <li>• Supporting organisations to understand and deploy AI</li> <li>• Prototyping new capabilities, e.g. LLM living white paper</li> <li>• Sandboxing with industry and government</li> <li>• Support access and inclusion initiatives</li> </ul> <p>Policy driven frameworks for Data and AI</p>	<p><b>Increasing Capabilities and Scaling Innovation</b></p> <p>Building on existing work:</p> <ul style="list-style-type: none"> <li>• AIGovernance.nz</li> <li>• Digital Infrastructure programmes</li> <li>• Sustainable Data Centres and compute power</li> </ul> <p>Building new capabilities:</p> <ul style="list-style-type: none"> <li>• Investment in Research and Development</li> <li>• Programmes to attract investment</li> </ul>	<p><b>Enhancing Adoption and Managing Risks:</b></p> <ul style="list-style-type: none"> <li>• Callaghan Innovation work on the ground</li> <li>• Activation and Risk Models</li> <li>• Te Tiriti o Waitangi</li> <li>• Digital inclusion and equality</li> <li>• Blocker identification removal</li> <li>• Tiaki AI, the New Zealand Creative Industries’ AI quality mark</li> <li>• Data ethics and standards</li> </ul>	<p><b>Building Talent</b></p> <p>Education</p> <ul style="list-style-type: none"> <li>• School system</li> <li>• Tertiary education</li> </ul> <p>Retraining the existing workforce:</p> <ul style="list-style-type: none"> <li>• Tertiary</li> <li>• Industry led (e.g. Spark NZ)</li> </ul> <p>Talent attraction and retention</p>
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**Setting and delivering our goals**

To achieve our ambitious strategic goals, we advocate a development policy that effectively mobilises the local ecosystem toward a unified objective.

SSIs can be signed with organisations already involved in this sector, beginning with globally influential technology companies like AWS, Google and Microsoft, as well as regionally significant entities, including Datacom, Fonterra and Spark NZ.

<sup>3</sup> Strategic Statement of Intent (SSI): In this document we define an SSI as a statement from an organisation that outlines its goals and activities, both current and future, with a clear plan for how it will achieve those goals. The SSIs are aligned to the AI Blueprint, Principles and Roadmap using the strategic pillars as a structure.

This initiative also encompasses Government entities like Callaghan Innovation and academic institutions including the Universities of Auckland, Waikato, Victoria, Canterbury, and Otago, aligning with ongoing activities and recommendations from [Sir Peter Gluckman's](#) work and the [AI Researchers Association](#).

Together, these agreements can accelerate government efforts, creating a sense of immediate support, momentum and the scale of AI in Aotearoa New Zealand without requiring significant government investment.

### **Building support, momentum and scale**

Using SSIs, we can align the current and planned activities of companies, government, universities, and other industry bodies that support students, researchers, startups, scaleups and enterprises with our strategic goals.

SSIs serve as a vehicle to showcase and concentrate existing initiatives while outlining future investment plans, complementing any existing Memorandums of Understanding (MOUs) and strategic partnerships. Examples of what may be included in an SSI are Spark NZ's One Tech Generation Forward,<sup>4</sup> Callaghan Innovation's AI and Data<sup>5</sup> Whare, The University of Auckland's NAOI Institute<sup>6</sup> and the University of Waikato led AI initiatives<sup>7</sup> and TAI AO Project.<sup>8</sup>

For the Government, SSIs offer a mechanism to align industry efforts, secure sector-wide commitment, and encourage additional

contributions in support of our Principles, Blueprint and Roadmap, through public-private partnerships.

They also outline investments and planned activities over the next 5-10 years, allowing us to **collectively value the investment in AI in Aotearoa** now, before any government funding.

In essence, SSIs represent a call from both Government and industry for active support of our strategy and provide a structured way to deliver support. Each SSI signing presents an opportunity for celebration through media events, fostering a sense of accomplishment and forward momentum.

This sense of scale and building momentum will encourage familiarity, build trust and promote adoption of AI technologies, ultimately advancing our strategic goals.

### **Our role**

The AI Forum's ongoing key role is to:

- Promote the safe and responsible adoption of AI through good governance.
- Convene industry, Government and academic support through the SSIs.
- Bring together stakeholders to collaborate on sandboxes and prototypes to showcase new technologies and models in a controlled and observable environment.
- Maintain robust Government partnerships and align industry strategic efforts with government policies effectively.
- Measure the impact of AI technologies in Aotearoa New Zealand.

4 <https://www.spark.co.nz/online/large-business-govt/why-choose-spark/why-spark/one-tech-generation>

5 <https://www.callaghaninnovation.govt.nz/products/connect/specialist-services/digital-and-ai/>

6 <https://www.naoiinstitute.auckland.ac.nz/>

7 <https://www.waikato.ac.nz/research/institutes-centres-entities/institutes/artificial-intelligence-institute/>

8 <https://taiao.ai/>

PART TWO:

# FOCUSED SECTOR REPORTS

## Focused Sector Reports

The second part of this report summarises the outputs from our AI Blueprint Workshop held in Auckland on 31 May 2024. Each sector report provides an overview of the workshop discussions as a foundation for future collaborative activities with those sectors, groups and organisations. It is not intended to be a comprehensive list of recommendations from the AI Forum.

The workshop was an invitation-only event including key stakeholders from each of the six sectors; agriculture, architecture, engineering and construction (AEC), creative industries, education, environment and health. Participants joined their respective workstreams and a sector lead/chair was pre-appointed.

Artificial intelligence is not a sector specific technology. This is reflected in the AI Forum's broad scope across the entire ecosystem. Accordingly, we invited participants with sector specific AI expertise, knowledge and thought leadership. We aim to maintain collaborations with other relevant industry organisations who have the necessary

knowledge, networks and commitment to achieve their goals.

Selected in consultation with the Government, these sectors are pivotal to Aotearoa's long-term economic success, poised to benefit significantly from increased investment in, and adoption of AI. This is not an exhaustive or exclusive selection, and we remain open to expanding our partnerships with additional sectors over time.

Led by their chairs, each sector has followed the same format in presenting their summary report. In addition:

- Due to time constraints, some sector workstreams focused on specific subsectors. For example, the Education workstream examined the current school system, noting there is an equally large challenge in re-skilling the existing workforce at the same time.
- The Health workstream were aware of the recent [AI in Healthcare Report](#) produced by the Prime Minister's Chief Scientific Advisor and the Ministry of Health. Contributors to the report were represented and the resulting summary takes account of it.

SECTOR	SECTOR LEAD	KEY STAKEHOLDERS REPRESENTED
Agriculture	Craig Pattison	AgriTechNZ, Federated Farmers
Architecture Engineering & Construction	Maria Mingallon	Industry, Academia
Creative Industries	Paula Browning	WeCreate, CopyrightNZ, NZGDA, APRA
Education	Dr Geri Harris	EdTechNZ, Industry
Environment	Prof Albert Bifet	AIRA, Academia, Industry
Health	Kevin Ross	Industry

## A number of immediate shared needs were identified. These include:

- Data, sandboxing and policy frameworks to support the safe innovation of AI, enabling us to produce systems and products that are renowned globally for transparency and trust. These will expand on our current knowledge guides.<sup>9</sup>
- Development of a talent pipeline, developing a long term approach in the education sector for growing a diverse and creative technology workforce.
- A greater focus on training and skills development of the entire workforce for the AI future.
- Beginning with the private sector, strategic support and investment from both the Government and the private sector are essential for developing the infrastructure and resources required for AI.

## Agriculture

### Where will we be in five years?

In 2030, Aotearoa New Zealand will be a world-leading hub for responsible AI innovation, globally recognised for harnessing AI to enable a prosperous, inclusive and equitable future. Our goals for the next five years include being in the top 30 of the Government AI Readiness Index, top 25 of the Global AI Index, and top 10 in OECD productivity rankings. To achieve this, we must begin now and move urgently, implementing specific actions and policies that drive us towards these targets. Achieving these milestones will significantly boost New Zealand's GDP, create high-value jobs and position us as a global leader in AI innovation.

<sup>9</sup> [www.aigovernance.nz](http://www.aigovernance.nz)

## Why should the agriculture sector be a key focus area?

The agriculture sector is pivotal to Aotearoa New Zealand's economy and cultural heritage. By focusing on AI-driven innovation in agriculture, we can help address pressing challenges including climate change, productivity gaps, and digital inequality, particularly in Māori agribusiness. AI can enhance farm productivity through precision farming, data-driven decision-making, automation, reducing compliance costs and increasing efficiency. These advances will directly increase agricultural output, contributing to GDP growth and ensuring our agricultural practices remain sustainable and globally competitive. Additionally, focusing on Māori agribusiness is intended to support our commitment to Te Tiriti o Waitangi and enhance economic development in Māori communities.

### Preparing for the future

To seize the opportunities AI presents, we must prepare now. This involves:

- **Digital infrastructure and connectivity:** Ensuring comprehensive internet coverage across rural areas to support AI and digital technologies. Enhanced digital infrastructure will enable widespread adoption of AI, leading to increased productivity and economic growth.
- **Upskilling workforce:** Investing in training and development for farmers and agribusiness professionals to leverage AI tools effectively. This will create high-value jobs and foster an inclusive, tech-savvy workforce, supporting job creation and economic development.

- **Data empowerment:** Utilising our robust data sets and fostering trust in data sharing to drive AI innovation. Efficient data use will enhance decision-making and innovation, boosting productivity across sectors.
- **International collaboration:** Strengthening international relationships to support local AI uptake and collaboration. Global partnerships will attract investment and expertise, accelerating economic growth.

These preparations align with the Government's focus on innovation, economic development and enhancing New Zealand's global competitiveness.

### Current needs

To thrive with AI integration, the agriculture sector needs:

- **Investment in digital coverage:** Expanding internet access to rural areas. This foundation will enable farmers to adopt advanced AI technologies, driving productivity and economic growth.
- **Support for rural professionals:** Investing in the education and development of on-farm and near-farm advisors. Skilled professionals will facilitate AI adoption, leading to more efficient and productive farming practices.
- **Ecosystem investment:** Focusing on investment, market insights, and addressing the right problems. Targeted investments will spur innovation and create new business opportunities, supporting GDP growth.

- **Transparent governance:** Establishing representative structures to foster trust and data sharing. Trustworthy governance will encourage data sharing and innovation, enhancing productivity and economic growth.

Addressing these needs will support the Government's agenda of boosting productivity, fostering innovation, and ensuring sustainable development.

To achieve this, in the next 12 months we need to:

1. **Co-invest in digital infrastructure:** Partner with private and public sectors to expand internet coverage. This will enable widespread AI adoption, increasing productivity and contributing to GDP growth.
2. **Upskill rural professionals:** Develop targeted training programmes for agricultural advisors and farmers. Upskilling will create high-value jobs and enhance productivity.
3. **Create an industry good entity:** Establish a national body for governance, cybersecurity and data management. Robust governance will ensure sustainable and efficient AI implementation.
4. **Foster collaboration:** Encourage industry-wide partnerships to align efforts and share knowledge. This will drive innovation and economic growth.
5. **Champion leadership:** Identify and support a respected leader to drive AI adoption in the agriculture sector. This will help attract investment and facilitate the integration of AI technologies, boosting productivity and economic development.

- **Pilot AI projects:** Initiate AI proof-of-concept projects to demonstrate tangible benefits and build momentum. Successful pilots will showcase AI's potential, encouraging further investment and adoption.
- **Engage in international partnerships:** Leverage global expertise and resources to enhance local AI capabilities. This will attract additional investment and expertise, supporting GDP growth and innovation.

Collectively, these actions will help drive economic growth, create jobs, and position New Zealand as a leader in AI and agriculture innovation.

In essence, industry and Government co-investment is required. This will help facilitate a future-focused AI Blueprint, proof-of-concept initiatives, and an industry-wide framework for AI in the primary sector.

## Architecture Engineering and Construction

### Where will we be in five years?

The Architecture, Engineering, and Construction (AEC) sector in New Zealand aspires to be at the forefront of developing, adopting and implementing innovative solutions to streamline the delivery of critical infrastructure projects, contributing to healthy, consistent GDP growth and positively impacting the nation's economy.

This vision will be supported by a fully defined AI innovation ecosystem, which is expected to expedite the awareness, adoption, and innovation of AI within the sector across the nation. This vision includes the establishment of a national framework of data and AI governance, standards, and policies to enable the development and implementation of responsible AI solutions. It is anticipated that AI will play a substantial role in the AEC sector's research and development initiatives, with over 40 percent of all projects forecast to involve AI. This integration signifies the commitment to embrace advanced technology responsibly to boost productivity in the sector..

### Why should the AEC sector be a key focus?

In September 2023, the construction sector contributed over \$17.6 billion to the nation's GDP, accounting for approximately 6.3 percent.<sup>10</sup> This substantial contribution underlines the sector's crucial role in the economy. Notably, even a slight increase in productivity can funnel hundreds of millions of dollars into the economy. The sector is also instrumental in preparing the nation's infrastructure for climate change, while enhancing the country's resilience to extreme weather events and environmental shifts. This highlights the importance of investing in cutting-edge technologies like AI, which have the potential to enhance productivity within the sector.

<sup>10</sup> Building and Construction Sector Trends - mbie.govt.nz.

<https://www.mbie.govt.nz/assets/building-and-construction-sector-trends-annual-report-2023.pdf>

**The AEC sector's strengths include:**

- **People, skills and talent:** The sector boasts a diverse pool of technically skilled individuals who manage extensive data volumes, complex engineering calculations, models and reports daily. While many of these talents are concentrated in larger organisations, numerous highly proficient professionals thrive within small to midsize enterprises. These individuals are recognised for their innovative flexibility and can experience direct and immediate benefits from time saved and enhanced efficiency processes.
- **Existing datasets:** The sector has access to numerous datasets, often proprietary and siloed, and process automation tools for example, bid generation.
- **Commercial environment:** There is a robust supply chain dependent on capital projects. However, the sector currently lacks a startup culture due to funding constraints.
- **Demand:** There is a strong appetite for quicker integration between proprietary datasets. Additionally, there's a desire for creating collaborative, open-source datasets, which can greatly enhance the sector's efficiency and innovation.
- **Business/regulatory environment:** Aotearoa New Zealand enjoys a stable and trusted business environment. However, there are currently no universally adopted data standards or AI-specific regulatory and policy frameworks governing this industry.

With focus and investment, we believe the sector can overcome its current limitations and contribute significantly to the overall economic growth of the country.

Additionally, recent Government-industry initiatives supported by Callaghan Innovation are poised to further advance the sector. These initiatives span across various sectors, including Agriculture and the Environment; and feature strategic efforts led by Te Uru Rākau New Zealand Forest Service (MPI). Their goals include doubling the export and advanced manufacturing of high-value wood products, scaling bio-innovation and accelerating technology adoption in forestry and wood processing.

Ministers Chris Bishop and Chris Penk have outlined priorities for enhancing climate resilience and adaptation, emphasising the crucial role of AI-enabled designs and analyses. The Manatū Mō Te Taiao Ministry for the Environment's (MfE) Waste Minimisation Fund is intensifying support for businesses innovating to convert construction and demolition waste into valuable resources. Automation and AI are expected to play integral roles at scale. These initiatives underscore the growing importance of AI in the AEC sector.

**Current needs:**

AI has the potential to significantly enhance productivity within the AEC sector, reduce the national infrastructure deficit, and help prepare the country for the effects of climate change. However, for AI to thrive in the sector, a mature understanding of data sharing models, including data ownership and stewardship is essential. Establishing policies, guidelines, and standards for responsible AI and data sharing for new and existing infrastructure assets is crucial.

The Government plays a pivotal role in supporting and enabling the sharing of national datasets through an industry-led National Digital Twin. Concurrently, the sector should encourage a culture of experimentation via innovation hubs and transparent funding mechanisms.

The AEC sector, known for its risk-averse, fragmented and cost-driven nature, requires a comprehensive approach to innovation. To achieve a 40 percent uplift in AI adoption across the entire sector, it is imperative to address all three innovation elements: awareness, adoption and innovation. By cultivating an environment that promotes awareness of AI benefits, supports adoption through clear policies and guidelines, and encourages innovation through strategic investments and collaboration, the sector will contribute significantly to the country's economic growth.

To achieve this, we recommend strategic investments in the following key areas:

- **People, skills and talent:** Create an education plan for all workforce levels to foster AI adoption and understanding of new roles.
- **Regulatory environment:** Establish Government-led AI and data standards to elevate industry maturity in data management and responsible AI usage.
- **Business environment:** Modernise procurement models to reflect the value of AI. Support organisations in embedding AI-driven changes and developing an AI investment pipeline for infrastructure projects.

Implement funding mechanisms to nurture a robust startup culture focusing on AI developments and adoption.

- **Governance and frameworks:** Develop open national datasets for a Government-endorsed industry-led National Digital Twin.
- **Research and Innovation:** Encourage collaboration between industry and academia to research and develop AI solutions. Establish innovation hubs and secure funding to ensure industry maturity and adherence to AI and data standards.

These strategic investments will help realise the full potential of AI in our AEC sector, raise productivity levels, and help address the national infrastructure deficit.

**To achieve this, in the next 12 months we need to:**

Firstly, establish a dedicated AI Forum of New Zealand Working Group by May 2025.

The key outcomes of this group will be:

- **AEC and AI business case:** Publish a comprehensive white paper providing an overview and practical recommendations for AI integration in the AEC sector. This will serve as a roadmap for understanding the present capabilities and future potential of AI in this industry.
- **Supporting the development of a National Digital Twin:** Inform and facilitate the creation of an industry-led National Digital Twin, ensuring it is designed and developed to effectively harness AI technology safely. Having Government 'at the table'<sup>11</sup> is imperative in demonstrating the importance of this initiative at a national level.

<sup>11</sup> At the table' refers to being committed to the discussion, set up, development, with a view to potentially future use based on agreed success criteria. Discussions about direct investment in, for example, a public-private partnership would be an outcome of those first steps

- **AI knowledge base:** Establish a comprehensive knowledge base to standardise AI practices in AEC, highlighting benefits and successful case studies for Government entities. This resource will include a handbook and provide guidelines on AI application in AEC, promoting its advantages, and feature case studies that demonstrate the benefits of AI adoption.
- **Education and industry collaboration:** Develop educational materials and training programmes to accelerate AI adoption, fostering partnerships between tech providers, consultancy firms, contractors, Government agencies, academia and communities.

Collaborative integration across the entire AEC supply chain, from initial asset stages to operational maintenance and data analysis, is essential for realising the full potential of AI.

## Creative Industries

### Where will we be in five years?

By 2030, the New Zealand Creative Industries' AI quality mark, Tiaki AI, will be globally recognised for being:

1. **Trusted** - ethical AI models, grounded in transparency and respect, distinguish themselves as 'created in NZ', enhancing Aotearoa's global reputation for creativity and innovation.
2. **Unique** - we will generate creative outputs celebrating our unique identity, with a special emphasis on Te Ao Māori. Rather than striving to compete on size and scale, our focus will be on cultivating creativity and cultural distinctiveness.

### Why should Creative Industries be a key focus?

Aotearoa New Zealand is renowned for its creativity and innovation. Our vibrant creative sector not only tells our unique stories, but also shares them with the world through technology. It's crucial that our creative industries thrive sustainably, ensuring future generations understand Aotearoa from our perspective, not just through Silicon Valley's lens.

Harnessing our connectedness as a competitive strength, we aim to establish collaborative AI centres of excellence. These hubs will attract creative minds, industries and educational institutions to collaborate and elevate our innovative AI solutions onto the global stage.

### Preparing for the future

We must prioritise rewarding, respecting and recognising original creative work. By selling trusted and unique AI solutions to the world, Aotearoa can position itself as a net exporter of creative intellectual property (IP).

In order to achieve this we need to:

1. Establish an industry-led, Government supported regulatory sandbox within our inaugural centre of excellence for creative AI. This initiative will involve partnerships with education and research institutions with existing AI capabilities. These programmes will be expanded and leveraged through formal agreements with creative businesses.
2. Catalogue existing datasets (creative inputs) available for licensing by the initial and future, centres of excellence.

3. Develop authentication systems and processes that establish Tiaki AI approval and endorsement, founded on principles of transparency and trust in both AI inputs and outputs.

### Current needs?

To succeed and lead in creative AI, our sector requires:

- Strategic Government and private sector infrastructure partnerships.
- Strong and dynamic IP regulation to protect creative rights.
- Funding to support the talent and work required to build foundational models.
- Improved data governance frameworks so that we can confidently build trust and transparency into our AI models.
- Increase training and raise awareness to promote the adoption of Trusted AI models, aiming to cultivate a thriving ecosystem of AI products and services anchored in Aotearoa.
- Enhanced Government communication on IP regulations to ensure clarity for those working with and using AI.

To support the Creative Industries, the following strategic investments are required:

1. Updating our IP regulations to provide dynamic protection and clarify usage, including AI whakapapa provenance.
2. Implementing a long-term strategy in the education sector to nurture a diverse creative technology workforce capable of developing foundational AI models that reflect Aotearoa.
3. Investment in AI centres of excellence to support collaboration, development and innovation

To achieve this, within the next 12 months we need to:

1. Develop the criteria for the Tiaki AI quality mark
2. Improve the general population's AI and IP literacy, with a particular focus on distinguishing different types, ethics and encouraging exploration.

## Education

### Where will we be in five years?

The future of education in New Zealand is one where learners are equipped, educators are empowered, and our nation excels in educational innovation, harnessing AI capabilities.

We urge the Ministry of Education to lead the way in championing AI integration to foster excellence in learning and teaching; ensuring measurable progress towards our vision through immediate actions. By doing so, we will secure New Zealand's position as a global leader in innovative education.

### In five years, our education sector will integrate AI to:

- Facilitate inclusive and equitable access to learning that is driven by a Te Ao Māori lens.
- Provide personalised learning to enhance engagement and lift outcomes for students.
- Automate administrative tasks, enabling educators to focus on teaching.
- Re-evaluate teaching, learning and assessment based on the requirements of future employment and societal contexts.

## Preparing for the future

- Capitalise on Network for Learning's (N4L) enablement of fast broadband to over 99 percent of schools.
- Operate within Government policies to promote digital transformation and facilitate AI adoption.
- Utilise our world-class AI and educational research groups to drive innovation.
- Build on the existing talent pool in our technology and education sectors to integrate AI.
- Leverage our flexible New Zealand Qualification Authority (NZQA) assessment framework to seamlessly integrate AI.

## To achieve this, we need to:

- Establish clear ethical guidelines and data privacy protocols for AI integration.
- Develop and implement an AI-augmented curriculum across all educational levels.
- Build educator capacity by including AI literacy in all ongoing professional development.
- Promote research on educational technologies to foster innovation.
- Invest in developing AI-based educational tools and learning management systems for New Zealand.

## To succeed within the next 12 months we need to :

- **Establish a national taskforce:** We envisage a working group is established as part of the AI Forum's AI Blueprint for Aotearoa. This working group will develop strategic plans and policies, monitor and evaluate AI implementation, in alignment with national educational goals.

- **Establish a community of practice:**<sup>12</sup> Create a country-wide network to facilitate collaboration among educators, AI practitioners and policymakers. We will conduct regular meetings, share resources online and develop best practices for AI in education.
- **Educate the educators:** Develop and implement comprehensive initial teacher education and continuing professional development programmes. This will include seminars presented by AI experts, online AI literacy courses and experiential, practical training.

## By May 2025 we will have:

- Well-defined frameworks and guidelines for AI integration in education, at all levels.
- Useful insights and tested AI tools from pilot programmes, to guide future applications.
- Significant improvements in AI knowledge amongst both educators and learners.

## Environment

### Where will we be in five years?

By 2030, advancements in data acquisition for AI systems will lower costs, enhancing informed environmental decision-making. AI will play a pivotal role in addressing various environmental challenges, from measuring biodiversity to facilitating strategic planning. Accessible through AI, data will empower people to make informed environmental choices, while benchmarking environmental data against international standards. Upholding Māori data sovereignty and respecting our cultural environment, our aim is to amplify our global environmental contribution rather than compete with it.

<sup>12</sup> There are already nascent communities we can leverage

## Why should the Environment be a key focus area?

The environmental sector in Aotearoa excels across multiple dimensions:

- It boasts significant environmental science and research groups that integrate cutting-edge technology into sustainability initiatives.
- The commercial landscape is dynamic, with ongoing innovations at the intersection of tech and environmental stewardship.
- Leveraging our clean-green reputation, the sector focuses on sustainable food production and clean tech solutions, providing numerous opportunities for partnerships, for example in precision farming.
- A responsive business and regulatory environment benefits from a smaller population, enabling swift deployment of initiatives.
- Our schools are dedicated to providing individuals with the necessary skills to contribute productively to society.
- Our country has abundant renewable energy resources and rich natural assets.
- Additionally, Aotearoa New Zealand is well-positioned to act as a testing ground for global environmental innovations. .

### To achieve this, we need to:

To achieve success, the environmental sector must develop a forward-thinking mindset, embracing the transformative power of technology while prioritising human-centric approaches. Enhancing interdisciplinary dialogue between environmental science and computer science is crucial.

From a commercial perspective, the sector needs to attract entrepreneurial talent, enhance micro-skilling, and increase collaboration with global innovators. There is a growing need to drive demand towards AI-produced solutions, emphasising speed, flexibility, and sensing capacity, with a greater focus on consumer markets (B2C) over business-to-business (B2B). Additionally, forging partnerships with pioneering overseas entities, and smaller countries and Pacific islands, presents further opportunities. Establishing robust ethical and regulatory frameworks is essential for building sustainable practices and attracting investment.

To achieve success in the environmental sector over the next five years, strategic investments should focus on several key areas:

- Investment in mobility research and development is essential to facilitate discussions on environmental issues, for example solar, biofuel and data centres.
- Investing time and resources to build interconnectedness with AI capabilities and targeted automation is essential for addressing environmental challenges posed by climate change challenges through practical applications.
- Raising public awareness about data privacy concerns is also pivotal.
- Open data initiatives, including geo-imagery data and high-frequency satellites, conducted at scale will enhance data collection and sharing capabilities.

- Additionally, investing in education and talent development in both environmental science and technological fields is essential for long-term success.
- Engagement from industry leaders, researchers and Government entities, is also crucial to fast-track these initiatives.

### To achieve this in the next 12 months we need to:

- Conduct an initial assessment of needs between environmental and technology specialists to set clear priorities. AI can be used to identify and address key gaps to enhance decision-making, and to break down steps needed to achieve environmental goals.
- Improve data and computer infrastructures to incentivise collaboration and enable the building of large language models (LLMs) for environmental applications.
- Support Government initiatives to facilitate data sharing among citizens through AI and digital commons to enhance environmental decision-making.
- Ensuring that national-level decisions are informed by environmental data, further enabling businesses to make well-informed sustainability choices.
- Educate the public on data sharing and data sovereignty to increase trust and willingness to share information.
- Promote a start-up culture to help foster the development of AI models to support environmental goals and educate individuals on the impacts of their decisions.

- Leverage New Zealand's global brand to boost commercialisation while expanding New Zealand Trade and Enterprise's (NZTE) focus to include intangible exports, including software and AI.
- Update immigration policies to help retain talented individuals.

## New Zealand Health Sector, empowered by AI

Today, New Zealand faces challenges in its pressured health system as it navigates the complexities of adopting AI. However, there are several foundational assets ready to be leveraged:

- Comprehensive national health data sets and a well established health identifier.
- Recent reviews and Government recommendations on [AI in healthcare in New Zealand](#)
- Internationally successful health technology companies.

As the public health system continues its reform, significant innovation continues across the wider sector including private providers, technology companies and academic institutions. Empowering the broader community to invest in locally-developed , innovative, responsible AI will have flow-on effects, improving trust, health outcomes, equity and productivity.

AI has the potential to help alleviate healthcare costs by assisting with increasingly complex tasks and empowering patient agency.

Fostering innovative AI health solutions will stimulate economic growth, create high-skilled jobs and position New Zealand as a leader in the global healthcare technology market.

By 2030, New Zealanders will expect the Government to be improving health outcomes of New Zealanders; and to promote a successful, innovative health AI sector to deliver measurable GDP growth in the future. This means:

- Identifying and selecting areas of existing or natural advantage, which could include specific diseases with disproportionate prevalence (for example, skin/breast cancer, suicide), dynamics of global interest (including indigenous health and equity), commercial product leadership, or data assets for maximum benefit.
- Creating a forward-thinking, high-trust model to allow our AI health innovators and researchers to harness data assets and access support for the creation and commercialisation of AI health solutions.

#### **Where will healthcare be in five years?**

- Citizens and healthcare staff will expect AI-driven solutions for both functional and clinical treatment, recovery and continued wellbeing.
- Aotearoa New Zealand will establish innovative AI health companies creating superior health outcomes and attracting global investment to New Zealand.
- Public and private interests will enthusiastically support responsible, ethical and transparent AI innovation.

To achieve this we need to:

- Agree that supporting home-grown tech investment is good for health in Aotearoa New Zealand.
- Create a leadership forum including public and private sector interests.
- Enable safe data access to New Zealand health data.
- Incentivise engagement between academic, public and private sectors, including research into AI safety, validation methods, and socio-technical impacts.
- Streamline trial and adoption processes for AI technologies.
- Improve visibility of what is happening – to partners as well as the public.
- Establish clear and balanced regulatory and standards framework:
  - Develop comprehensive principles-based regulations tailored for the development of AI systems in healthcare across public and private sectors.
  - Involve all appropriate stakeholders in developing AI governance frameworks.
  - Design regulatory request approval framework/process(es) that evolve with the pace of technology change yet take a risk-balanced approach.
  - Mandate transparency, interpretability and auditability of AI decision-making solutions.
- Promote AI literacy among Ministers, Departments regulators, healthcare professionals, and the general public.

**During the next 12 month we recommend the following actions:**

- **Health AI leadership:** Appoint an independent working group empowered to develop core frameworks for successful Health AI innovation and commercialisation in New Zealand. Scope for this working group will include:
  - Governance, regulations, engagement and consultation expectations, training and testing expectations.
  - Investment and collaboration models.
  - Identifying and supporting high-priority focus areas for New Zealand.
- **Health data access rules:** Define a set of governing rules for Health AI innovators in order to access and use New Zealand health data sets in both public and private entities. This includes:
  - conditions and expectations for access, privacy, security, ethics, sovereignty, transparency, remuneration model(s), etc.
  - evaluation methods and pathways for trial and deployment.

## Conclusion

Since the AI Blueprint Workshop on 31 May 2024, each of the sectors has begun working towards the activities they have outlined. There are several communities of practice beginning to form and planning for larger prototype activities, for example in Agriculture and AEC, is well underway.

We look forward to working alongside Government, businesses and other organisations to harness the power of AI to enable a prosperous, inclusive and equitable future Aotearoa.



**AI Forum**  
New Zealand  
Te Kāhui Atamai Iahiko o Aotearoa



**AI BLUEPRINT FOR AOTEAROA**

July 2024

**AI FORUM NEW ZEALAND**

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